

# **INTEL 865 Main board**

## User's Manual

### *Chapter 1 Package Contents*

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Your main board package contains the following items:

- One Intel 865 serial main board
- One 80-pin ultra DMA 66/100 IDE drive ribbon cable
- One 34-pin Floppy drive ribbon cable
- Software install CD
- One user's manual

### *Chapter 2 Introduction*

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#### **Key Features:**

-Chipset:

Intel 865GV MCH: Intel 865GV: ICH: Intel 8280 IEB

-CPU:

Supports Intel Pentium HT (Hyper Threading Technology) CPU

Supports Intel Pentium 4 (Cedar mill): LGA 775 CPU

Supports Intel Pentium D (Smithfield) LGA775CPU

Supports Intel Pentium D (Presler) LGA775

Supports Intel Pentium 4 (Prescott) LGA775CPU

Supports Intel Celeron D (Prescott) LGA775

Supports Intel Celeron D (Cedar mill) LGA775 CPU

Supports 533/800MHz HOST BUS Frequency

-Memory:

Supports DDR266/333/400 Double Channel Mode

Provides Two 184 pin DDR slots

-Supports 4X/8X Fast Write Protocol (1.5V only)

Supports AGP 3.0 compliant

-Built Intel Extreme 2 Graphics display

Integrated display function technologies without extend VGA card

Integrated 2D/3D Graphics Controller

-One floppy port support format 360K/720K/1.2M/1.44M/2.88M disk driver

-One serial port

-One parallel port supports EPP/ECP/SPP transfers

-Eight USB ports

-One PS/2 Keyboard port

- One PS/2 mouse port
- One GAME/MIDI port
- One VGA port
- One IRDA port
- Two SATA ports
- Sound onboard AC'97 2.2 specification compliant
  - Supports six channel sound input (example Realtek ALC650)
  - Supports 16 bit ADC (Analog Digital Converter)
  - Supports multiple stereo input mixer
  - Provides Mic In Line In Line Out jack
- Built-in 10/100 Mbps LAN card (Optional)
- Expansion slot:
  - One 4X/8X AGP slot (supports 1.5V only)
  - Two 32-bit PCI slots 2.2 specifications compliant
- Dimension
  - Micro ATX form factor

## *Chapter 4 Installation*

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### 4.1 Jumper Setting and Slot

#### **FSO/FS1: CPU Frequency Jumper setting**

Jumper	AUTO (Default)	400	533	800
FSO	1-2	2-3	OPEN	2-3
FS1	1-2	2-3	2-3	OPEN

#### **Jp6: Clear CMOS Jumper setting**

1-2 (Default)	Normal
2-3	Clear CMOS

#### **Audio: Front panel Jumper setting**

PIN	Function	PIN	Function
1	MIC+	2	Ground
3	Vbias	4	AuD_Vcc(AVCC)
5	AuD_R_Out	6	R_Out Back
7	N.C	8	Key

9	AuJF_L_Out	10	L_Out Back
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### SATA: PIN Jumper setting

PIN	SATA Function	PIN	SATA2 Function
1	Ground	1	Ground
2	RSATA_RXP1	2	RSATA_RXP2
3	RSATA_RXNI	3	RSATA_RXN2
4	Ground	4	Ground
5	RSATA_TXP1	5	RSATA_TXP2
6	RSATA_TXP1	6	RSATA_TXP2
7	Ground	7	Ground

### Expansion slot

DDR1/DDR2	184PIN DDR MEMORY SLOT
PCI1/PCI2	32 PIN PCI BUS expansion slots
AGP8X	AGP display expansion slots
Socket 775	Socket 775 CPU slots

### USB: Expansion Connector

PIN	Function	PIN	Function
1	VCC: Power	2	VCC: Power
3	D-: DATA-Signals	4	D-: DATA -Signal
5	D+: DATA +Signal	6	D+: DATA + Signals
7	GND: Ground	8	GND: Ground
9	Key	10	NC

### Connectors

PS/2 (Bottom)	PS/2 keyboard (Purple)
PS/2 (Top)	PS/2 Mouse header (Green)
USB1/2/Lan	USB ½ LAN Connector port
USB3/4	USB3/4 Connector Port
USB5/6	USB 5/6 Connector Port
USB7/8	USB7/8 Connector port
LPT	Pinter Connector port
COM1/com2	Serial port COM1/COM@ connector port
GAME/MIDI	GAME/MIDI Port
LINE OUT/LINE IN/MIC	Audio Output/Audio Input/Microphone
CD_IN	CDROM Audio Input port

IDE1/IDE2	Primary/ Secondary IDE port
SATA1/SATA2	SATA Port
FDD	Floppy Disk Drive Connector port
PW1/PW2	ATX Power Supply Connector Port
CPU FAN/2 <sup>nd</sup> FAN	CPU/ System FAN port
WOL	Wake-on-Lan Connector port
IRDA	Irda Infrared port

## Function port panel

Power Supply LED	Pin 1: Power Supply Anode; Pin3: Ground
HDD LED	Pin2: power supply Anode; Pin: LED Signal
Power Supply Switch	Pin8 10: Switch Signal
Reset Switch	Pin4 16: Reset Switch
Speaker Output	Pin9: Speaker Output; Pin15: Power Supply Anode

## 4.2 CPU Installation

The system board is equipped with a surface mount LGA 775 socket. This socket is exclusively designed for installing a LGA 775 packaged Prescott CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the LGA 775 CPU socket on the system board
4. The CPU socket comes with a cover that is attached with a removable protective cap the cap is used to protect the CPU Socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.
5. Lift the protective cap from the location pointed below to detach the cap from the cover.
6. Unlock the socket by pushing the lever down, moving it away from the side tab of the socket, then lifting it up.
7. Now lift the cover.
8. Position the CPU above the socket. The gold mark on the CPU. Must align with pin 1 of the CPU socket,
9. Insert the CPU will fit in only one orientation and can easily be inserted without exerting any force.
10. Once the CPU is in place, move the cover down.
11. Push the lever down to lock the socket. The lever should hook onto the side tab to indicate that the CPU is completely secured in the socket.
12. Before you install the fan/ heat sink assembly do not spread the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.
13. Place the heat sink top of the CPU. The 4 studs around the heat sink which are used to secure the heat sink into place.
14. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

## 4.3 Memory installation

This main board supports DDR266/DDR333/DDR400 DDR memory. You may install 128/256/512MB 184 pin DDR memory. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM used by SDRAM. Follow these instructions to install the memory:

1. Push the latches on each side of the DIMM slot down.
2. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
3. Check that the cutouts on the DDIMM module edge connector match the notches in the DIMM slot.
4. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches levered upwards and latch on to the edges of the DIMM.
5. Install any remaining DIMM modules.

#### **4.4 AGP Card Installation**

This main board has an Accelerated Graphics port (AGP) slot that supports 8X (+1.5V) cards when you buy an AGP card, make sure that you ask for one with +1.5V specification.

Note: Install only +1.5V AGP card, This motherboard does not support 3.3V AGP cards

#### **4.5 IDE Devices Installation**

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives among others. The motherboard ships with an IDE cable that can support one or two IDE devices if you connect two IDE devices to a single cable, you must set the device as a Master and one of the drives as Slave. To set the device as a Master or Slave Device. The Master device connects to the end of the cable.

#### **4.6 Other Device Installation**

##### 4.6.1 Serial ATA Installation (7-Pin SATA/SATA2)

The motherboard bundles the new Serial ATA technology through the SATA interfaces onboard. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement. These connectors support serial ATA HDDs and allow up to 150MB/s data transfer rate using thin 4-conductor SATA cables faster than the standard parallel ATA with 133MB/s (Ultra ATA/133)

**Note: The Serial ATA cable is smaller and more flexible allowing easier routing the chassis the lower pin count of the serial ATA cable eliminates the problem caused by the wide, flat ribbon cables of the parallel ATA interface.**

**Hot plug support for Serial ATA drive and connections are not available in this motherboard.**

##### 4.6.2 Floppy Disk Drive Installation

The motherboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.

Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector

##### 4.6.3 Sound connector port installation

This motherboard has three audio ports connect audio device the left side jack (green) is for a stereo line-out signal. The middle jack (gray) is for a stereo line-in signal. The right side jack (red) is for a microphone.

##### 4.6.4 Wake on LAN(WOL)

If you have installed a LAN card, use the cable provided with the card to plug into the main board WOL connector. This enables the wake on Lan feature when your system is in a power saving mode,

any Lan signal automatically resumes the system. You must enable this item using the power management page of the setup utility.

#### 4.6.5 Clear CMOS (Clear RTC RAM) (Jp6)

This jumper allows you to clear the Real Time clock (RTC) RAM in CMOS. You can clear the CMOS memory of data, time, and system setup parameters by crasing the CMOS RTC RAM data. The RAM data in CMOS that include system setup information such as system passwords is powered by the onboard button cell battery.

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from Pin 1-2 (default) to pin 2-3 keep the cap on pin 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn on the computer
4. Hold down the <DEL> key during the boot process and enter BIOS setup to re-enter data.

**Note 1:** Except when clearing RTC RAM, never remove the cap on CLRRTC1 jumper default position removing the cap will cause system boot failure!

**Note 2:** you do not need to clear to clear the RTC when the system hangs due to over clocking. For system failure due to overclocking, use the C.P.R (CPU Parameter Recall) feature shut down and reboots the system so BIOS can automatically reset parameter settings to default values.

#### 4.6.6 ATX power connectors (20-pin PW1, 4-Pin PW2)

These connectors connect to an ATX 12V power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit. In addition to the 20-pin PW1 connector, connect the 4-pin ATX +12V power plug to provide sufficient power to the CPU.

**Note1:** Make sure that your ATX 12V power supply can provide at least 15A on the +12V lead and at least 2A on the +5V standby lead (+5VSB). The minimum recommended wattage is 300W or above for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

**Note2:** Do not forget to connect the 20-Pin ATXPWR1 and 4-pin ATX12V1 power plugs. Failure to do so may cause severe damage to the CPU or mother board!

## *Chapter 5 Driver Installation*

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### 1.1 Installation Directory

The utility CD is supplied with that main board the connects contained in it are showed as below:

Directory	Driver	OS
INTEL\INF\	Intel chipset software	Windows 9X Windows 2000/XP Windows NT4.0
SOUND\REALTEK\	Realtek AC'97 Audio driver	Windows 9X Windows 2000/XP Windows NT4.0
INTEL\usb2.0\865\	VGADRIVER SETUP	Windows 9X Windows 2000/XP Windows NT4.0
INTEL\VGA\865\	VGA driver setup	Windows 9X Windows 2000/XP

		Windows NT4.0
LAN\8100	RTL8100 Lan driver setup	Windows 9X

Before installing audio driver, you must identify the mode of AC'97 codec. For example: if you use Realtek serial codec, you need to enter into the Realtek directory installing.

### 1.2 Intel Chipset software setup

Insert the driver CD, running driver software CD, choose the directory:

\CDROM:\INTEL\INF\

Click "NEXT" to continue

Select "YES" to continue

Select "NEXT" to continue

Select "FINISH" to complete the installation.

### 1.3 JAA (Intel Application Accelerator) Setup

IAA program doesn't support ICH5, only supports ICH%R

### 1.4 Sound Driver Setup

#### 1.4.1 Sound driver setup (For Realtek series of WIN98 operation system)

Insert the driver CD, running driver software CD, choose the directory: (CD-ROM:\SOUND\REALTEK\ Setup exe)

Select "Next" to continue

Select "Finish" to complete the installation

#### 6-channel Sound output support

Please follow the steps below for operation

After install sound driver, click "Sound effect" "AC97 Audio configuration" options

Click "Sound Configuration", select "6 channel mode for 5.1 speakers output" options

Click "Sound Effect" menu "Environment", you must choose one sound effect realization 6-channel sound output.

#### 1.4.2 Un installation Sound Driver (For Realtek series of WIN98 operation system)

Startup to WINDOWS desktop, select "Setup"/ "Control Panel" select "Add/Delete" menu select "Avance AC'97 Audio driver" click "Add/Delete" menu select "language", confirm "GO" select "complete" restart system and program auto delete.

### 1.5 USB 2.0 driver setup

USB (Universal serial bus), the motherboard implements the new Universal serial Bus (USB) 2.0 specification, extending the connection speed from 12Mbps on USB1.1 to a fast 480Mbps on USB 2.0 driver setup can ran windows update in windows 200/XP by internet.

### 1.6 VGA Driver Setup

Insert the driver CD, running driver software CD choose the directory \CD-ROM:\INTEL\VGA\865\

Select "Next" to continue

Select "Next" to continue

Select "Finish" to continue

### 1.7 LAN driver setup

RTL8100 LAN driver only supports Windows 9x, Windows 2000/XP already built in this driver.

## Chapter 6 BIOS Setup

The BIOS Setup utility record settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings your computer applies those information to initialize all the components when booting up and basic function. You components when booting up and basic function of coordination. Between system components if the setup utility coordination is incorrect, it may cause the system to malfunction It can even stop you computer booting properly if it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information;

Or you can hold down the page up key while rebooting your computer holding down the page up key also clears the setup information

### 6.1 Main menu

Phoenix Award BIOS CMOS Setup Utility	
<ul style="list-style-type: none"><li>➤ Standard CMOS Features</li><li>➤ Advanced BIOS Features</li><li>➤ Advanced Chipset Features</li><li>➤ Integrated Peripherals</li><li>➤ Power Management Setup</li><li>➤ Power management setup</li><li>➤ PnPPCI Configurations</li><li>➤ Frequency / Voltage Control</li></ul>	<ul style="list-style-type: none"><li>➤ Load Fail-Safe Defaults</li><li>➤ Load Optimized Defaults</li><li>➤ Set Supervisor Password</li><li>➤ Set User Password</li><li>➤ Set User password</li><li>➤ Save &amp; Exit Setup</li><li>➤ Exit without saving</li></ul>
Esc :Quit F9: Menu in BIOS F10 : Save & Exit Setup	↑↓→← :Select Item
Time, Date, Iliad Disk Type...	

You can use cursor arrow keys to highlight anyone of options on the main menu page. Pres enter to select the highlighted option. Pres the Escape key to leave the setup utility. Press the F9 key to go back to menu in BIOS. Some option on the main menu page lead to tables of items with installed value that you can use cursor arrow keys to highlight on item, and pres pgup and pgDn keys to cycle through alternative values of that item the other options on the main menu page lead to dialog boxes that require your answer yes or No by hitting the Y or N keys if you have already changed the setup utility, press F10 to save those changes and exit the utility.

- ❖ Standard CMOS Features setup date, time floppy type
- ❖ Advanced BIOS Features Setup BIOS provides function for example virus, boot-strap induct
- ❖ Advanced Chipset features Setup include main board chipset parameter, for example DRAM Timing
- ❖ Integrated peripherals setup include main board all peripherals drive
- ❖ Power Management setup include main board all peripherals drive
- ❖ Power management setup setup CPU hard disk monitor drive power save mode
- ❖ PnP/PCI configurations setup Pnp and PCI interface parameter
- ❖ Frequency / Voltage control setup CPU frequency/ voltage control
- ❖ Load optimized Defaults Setup the best performance values un system
- ❖ Set User password setup user password in system
- ❖ Save & exit Setup setup save and exit press y to save and exit
- ❖ Exit without save and exit, press N to without save and exit

### 6.3 Advance BIOS Features

- ❖ CPU L1&L2 Cache Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory
- ❖ First Boot Device when system boot-strap first time detect device
- ❖ Second/ third boot device when system boot-strap first time detect device
- ❖ Boot other Device if you enable this item the system will also search for other boot devices if it fails to find an operating system from the first two locations.
- ❖ Swap floppy drive if you have two diskette drives installed and you enable this item drive A becomes drive B and drive B becomes drive A

### 6.4 Advanced Chipset Features

- ❖ DRAM Timing Selectable  
BIOS auto detect by SPD Default: Manuel
- ❖ CAS latency Time  
Set up memory read order wait time Default: 2.5
- ❖ Active to Pecharge Delay  
Control DRAM running Pecharge delay time option Default:6
- ❖ DRAM RAS –to CAS Delay  
Control DRAM startup read and write order Default:3
- ❖ Memory Frequence for  
Memory frequecce enabled select DDR200/DDR266 Default: AUTO
- ❖ System BIOS Cacheable  
If enable system BIOS read cache Default: Disabled
- ❖ Video BIOS Cacheable  
If enable Video BIOS read cache Default: Disabled
- ❖ Delayed Transaction  
Enable ICH2 will be delayed Default: Disabled
- ❖ Delayed prior to Thermal  
Enable system detect DRAM temperature time Default: 16min
- ❖ AGP Aperture Size(MB)  
Select AGP capability Default: 64MB

### 6.5 Integrated peripherals

- ❖ On-chip primary/ Secondary PCI IDE  
Chipset inside the first/ second channel of PCI IDE interface Default: Enabled
- ❖ IDE Primary / Secondary Master slave PIO  
The first/ second IDE primary master/ primary slave control PIO  
Mode Default: Auto
- ❖ USB Controller  
Setup USB controller Default: Enabled
- ❖ USB Keyboard Support  
Setup Support USB keyboard Default: Disabled
- ❖ AC97 Audio  
If use AC97 sound chipset Default: Audio
- ❖ Init Display First  
When boot-start the first time delect device Default: PCI slot
- ❖ Onboard FDC Controller  
Setup onboard FDC controller Default: Enabled
- ❖ Onboard serial port ½  
Setup onboard serial port ½ Default: 3F8/IRQ4
- ❖ UART Mode select  
Setup UART mode select Default: Normal
- ❖ Onboard paralld Port

- ❖ Setup select paralld port Default: 378/IRQ7
- ❖ Paralled Port Mode
- Setup paralld port mode Default: SPP
- ❖ Game/Midi port Address
- Setup game/MIDI port address Default: 201/330
- ❖ Midi Port IRQ
- Setup MIDI port IRQ Default: 10

### 6.6 Power Management Setup

- ❖ ACPI Function
- Setup if use ACPI function Default: Enabled
- ❖ Video off Method
- Setup video off method Default: DPMS
- ❖ Video off In Suspend
- Setup when video off in suspend Default: yes
- ❖ Suspend Type
- Setup suspends type Default: Stop Grant
- ❖ Modem use IRQ
- Setup modem use IRQ Default: 3
- ❖ Soft-off by PWR-BTTN
- Setup soft –off type Default: Instant-off
- ❖ Power on by Ring
- Setup if use modem wake up Default: Enabled
- ❖ USB KB wake-up From S3
- Setup if use USB keyboard wake up from S3 Default: Enabled

### 6.7 PnP/PCI Configurations

- ❖ Rest Configuration Data
- When select enabled the BIOS restart write system
- Configuration data Default: Disabled
- ❖ Resources controlled by
- System resources parameter setup Default: Disabled
- ❖ PCI/VGA Palette Snoop
- PCI/VGA card color setup Default: Disabled

### 6.8 Frequency/Voltage Control

- ❖ Auto Detect PCI C1k
- Setup auto detect PCI Clock Default: Enabled
- ❖ CPU Clock
- Setup CPU BUS frequency

Note: The main board auto detect CPU frequency, so you needn't Setup CPU frequency by you, the CPU can display normal

### 6.9 Load optimized Defaults

If you select this item and press enter, a dialog box appears.

You press y, and then Enter, the setup utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Note: It id highly recommended that uses enter this option to load optimal values for accessing the best performance.

### 6.10 Load optimized Defaults

If you select this item and then press enter a dialog box appears.

If you press Y, and then Enter, the setup utility loads a set of best –Performance default values These default values are quite demanding and your system might not function properly if you are using slower memory chips or there low-performance components.

### 6.11 Change Password

If you highlight this item and press Enter, a dialog box appears that you can enter a supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then the password is required for the access to the setup utility or for it at start-up, depending on the setting of the password check item in advanced setup.

### **6.12 Save Exit & Without Save Exit Setup**

Highlight this item and press Enter to Save the changes that you have made in the setup utility configuration and exit the program when the save and exit dialog box appears press Y to save and exit, or press N to exit without saving.